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## REMARKS

Claims 1-20 remain pending.

In the Office Action, the Examiner objected to the drawings; objected to the disclosure; rejected claims 1, 2, 4, 6-10, 12, 13, 15, 17, and 18 under 35 U.S.C. § 103(a) as being unpatentable over Takada (U.S. Patent No. 5,907,624) in view of Vähätilo et al. (U.S. Patent No. 5,963,901); rejected claims 5, 14, and 20 under 35 U.S.C. § 103(a) as being unpatentable over Takada in view of Vähätilo et al. and further in view of Kolesnik et al. (U.S. Patent No. 6,263,312); and rejected claims 3, 11, 16, and 19 under 35 U.S.C. § 103(a) as being unpatentable over Takada in view of Vähätilo et al. and further in view of El Malki (U.S. Patent No. 6,044,068).

In Fig. 3, the extent of element 30 has been clarified as requested. The other drawing objection has been obviated by the addition of the word “samples” after the square-bracketed numbers in Figs. 2, 3, 7, and 9. At least page 6, lines 4-6 and 10-12, and page 7, lines 5-7 and 27-29, of the specification indicate that the bracketed numbers in these figures denote numbers of samples. Applicants respectfully submit that the addition of “samples” within the brackets removes the need for this drawing objection and that the objection should be withdrawn.

Applicants respectfully traverse the objection to the disclosure. As is apparent from page 4, lines 10 and 11, the sentence refers to the input of component 30. Referring to Fig. 2, this sentence states that component 30 may receive its input “... from path 24 ... and through a buffer 32 ...” In Fig. 2, the path 24 is illustrated as an arrow, and buffer 32 is illustrated as a larger arrow between path 24 and element 30. Thus, Applicants submit that “buffer 32” is

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correct on page 4, line 14 of the specification. The objection to the disclosure should be withdrawn.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See M.P.E.P. § 2143.

**Claims 1 and 12:**

Applicants respectfully traverse the § 103(a) rejection of independent claims 1 and 12 over Takada in view of Vähätalo et al. Claims 1 and 12, as amended, require a method and system including, *inter alia*, “analyz[ing] each frame to determine a number of transform products each having an amplitude above a threshold; and compar[ing] the number of transform products to a validation range to determine if the frame contains the signal component.” Even if it were proper to combine the teachings of Takada and Vähätalo et al., a *prima facie* case of obviousness has not been established, because the combination fails to teach or suggest at least the above quoted elements of independent claims 1 and 12.

Col. 7, lines 20-35, of Vähätalo et al. (which includes lines 29-34 cited on page 3 of the Office Action) appears to disclose computing a signal-to-noise ratio (SNR) for eight different frequency bands. With regard to the Voice Activity Detector (VAD) decision block 110 in Fig. 12, col. 8, lines 57-66, of Vähätalo et al. further provides:

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A summing unit 111 in the voice activity detector *sums the values of the signal-to-noise ratios SNR(s)*, obtained from different frequency bands, whereby the parameter  $D_{SNR}$ , describing the spectrum distance between input signal and noise model, is obtained according to the above equation (19), and the value  $D_{SNR}$  from the summing unit 111 is compared with a predetermined threshold value  $v_{th}$  in comparator unit 112. If the threshold value  $v_{th}$  is exceeded, the frame is regarded to contain speech.

(emphasis added). Thus Vähätilo et al. only appears to teach or suggest identifying speech based on an aggregation of eight SNRs and a comparison of the aggregation with a threshold.

First, the SNR(s) values in Vähätilo et al. do not reasonably teach or suggest the claimed "transform products." Rather, seven adjacent power spectrum components  $P(f)$  are summed to obtain each calculation spectrum component  $S(s)$  (see col. 4, lines 42-62 of Vähätilo et al.). These calculated components  $S(s)$  are further divided by noise spectrum estimates  $N(s)$  to obtain the eight SNR(s) ratios. At least due to the binning and addition of estimated noise, these SNR(s) values do not reasonably teach or suggest the "transform products" set forth in claims 1 and 12.

Second, even if the SNR(s) did correspond to the claimed transform products, Vähätilo et al. fails to teach or suggest determining "a number of transform products each having an amplitude above a threshold," as claimed. Nowhere in col. 7 or elsewhere does Vähätilo et al. teach or suggest comparing the eight SNR(s) with "a threshold" to determine "a number of transform products . . . having an amplitude above a threshold." Rather, the above-quoted portion of col. 8 shows that Vähätilo et al. only teaches comparing a weighted sum of the SNR(s) to a threshold. This comparison does not teach or suggest the determination of a number of transform components set forth in claims 1 and 12.

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Third, because Vähäntalo et al. does not teach or suggest determining a number of transform products having an amplitude above a threshold, it cannot teach or suggest "compar[ing] the number of transform products to a validation range" as claimed. Rather, Vähäntalo et al. only appears to teach comparing a spectrum distance  $D_{SNR}$  with a threshold value  $v_{th}$  (col. 8, lines 63-66). Because the combination of Takada and Vähäntalo et al. fails to teach or suggest all claimed elements, a *prima facie* case of obviousness has not been established for claims 1 and 12. The § 103(a) rejection of claims 1 and 12 is improper and should be withdrawn for at least these reasons.

A *prima facie* case of obviousness also has not been established, because there is no suggestion or motivation to combine the teachings of Takada and Vähäntalo et al. The apparent justification on page 4 of the Office Action that both references "are from a similar field of endeavor-in speech recognition" is not sufficient. See M.P.E.P. § 2143.01: "Fact that references can be combined or modified is not sufficient to establish *prima facie* obviousness."

Further, Takada discloses in col. 5, lines 36-64, frame-by-frame determination of whether speech is present based on a mean power ratio  $VP(k)$  that is computed from the mean frequency power  $F_AV(k)$  of the signal  $X(f)$  and a mean noise power  $N_AV(k)$ . No deficiency or problem with Takada's scheme of speech detection has been identified that would have motivated or suggested to one of ordinary skill to add the teachings from any other reference, much less the particular teachings from Vähäntalo et al. Because no suggestion or motivation to combine the teachings of Takada and Vähäntalo et al. has been identified in the references themselves or

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elsewhere, a *prima facie* case of obviousness has not been established for claims 1 and 12 for at least these additional reasons.

Dependent claims 2, 4, 6-10, 13, 15, 17, and 18 are allowable at least by virtue of their respective dependence from claims 1 and 12.

Regarding dependent claims 3, 5, 11, 14, 16, and 19, the addition of Kolesnik et al. (claims 5 and 14) and El Malki (claims 3, 11, 16, and 19), even if proper, fails to cure the deficiencies of Takada and Vähätilo et al. explained above. Kolesnik et al. and El Malki also fail to teach or suggest the above-quoted elements of the method and system recited in independent claims 1 and 12. The Office Action does not allege that Kolesnik et al. and El Malki teach or suggest the claim elements at issue. Hence, a *prima facie* case of obviousness has not been established for dependent claims 3, 5, 11, 14, 16, and 19, because the various combinations of references fails to teach or suggest all elements of these dependent claims.

**Claim 20:**

Applicants respectfully traverse the § 103(a) rejection of independent claim 20 over Takada in view of Vähätilo et al. and further in view of Kolesnik et al. Claim 20, as amended, requires a program storage device including instructions including, *inter alia*, "analyzing each frame to determine a number of transform products each having an amplitude above a threshold; and comparing the number of transform products to a validation range to determine if the frame contains the signal component."

The combination of Takada and Vähätilo et al. fails to teach or suggest at least the above quoted elements of independent claim 20 for the reasons given above with regard to claims 1 and

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12. A *prima facie* case of obviousness also has not been established for claim 20, because there would have been no suggestion or motivation to combine the references, as explained above with regard to claims 1 and 12. Applicants need not reach the proposed addition of Kolesnik et al. due to these serious deficiencies in Takada and Vahatalo et al.

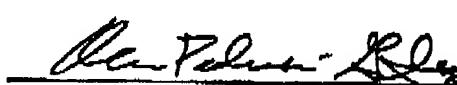
Applicants submit that claims 1-20 are allowable over the applied art. Reconsideration and allowance of these claims is respectfully requested.

In the event that any outstanding matters remain in this application, Applicants request that the Examiner contact Alan Pedersen-Giles, attorney for Applicant, at the number below to discuss such matters.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 02-2666 and please credit any excess fees to such deposit account.

Respectfully submitted,

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